

REMARKS

Favorable reconsideration of the above-identified application is requested in view of the following remarks.

Claim 7 is canceled by way of this amendment, as it was identical to Claim 6. Thus, Claims 1-6 and 8-11 are pending in this application, with Claims 1, 10, and 11 being independent.

The Official Action rejects Claims 1-11 under 35 U.S.C. § 102(b) as being anticipated by British Patent No. 2,344,487, hereinafter *Smith*.

Claim 1 is generally directed toward an ultrasound horn having a combination of features including a fixing section, a sealing section and a transfer section extending therebetween and one or more elongated recesses being formed at least in the transfer section. The end of the recess located most proximal the sealing section has a rounding-off encompassing, along the rounding-off, at least a first radius of curvature, a second portion with a second radius of curvature and a third portion with a third radius of curvature. To better define one of the differences between the ultrasound horn here and the disclosure in *Smith*, Claim 1 has been amended to recite that the first radius of curvature is different from at least one of the second and third radii of curvature.

In setting forth the anticipatory rejection of Claim 1 based on *Smith*, the Official Action relies on Figures 5, 6, 10-12 and 25-28 in *Smith* and the corresponding description in *Smith's* specification.

Figures 5 and 6 of *Smith* show an ultrasonic resonator provided with several slots 22, 23. *Smith* states in the discussion at lines 23-28 of page 5 that the slots have central portions 22a, 23a that are substantially uniform in width, and upper and

lower ends that taper to a width, with the extreme ends of the slots being radiused. Thus, there is no disclosure in connection with the resonator shown in Figures 5 and 6 of *Smith* of recesses having, at least at the end which is located most proximal the sealing section, a rounding-off encompassing, along the rounding-off, at least a first portion with a first radius of curvature, a second portion with a second radius of curvature and a third portion with a third radius of curvature, with the first radius of curvature being different from at least one of the second and third radii of curvature as recited in Claim 1.

The embodiment of the ultrasonic resonator shown in Figure 10 of *Smith* includes essentially lozenge-shaped slots 32. As described in *Smith* at page 6, lines 7-12, the slots have a maximum width at the center point 32a, and upper and lower portions 32b that taper in width towards the ends of the slot. The ends of the slots are radiused.

Figure 25 shows a slot having a central portion 80 of uniform width and end portion 81 that tapers uniformly toward the ends 82 of the slot. The ends 82 of the slot is once again radiused as discussed at page 8, lines 13-15.

Figure 26 shows a slot of bi-convex shape. In this embodiment of the slot discussed at page 8, lines 17-18 of *Smith*, the width of the slot decreases gradually from the mid point of the slot 84 to the ends 85 which are radiused.

Figure 27 of *Smith* shows a slot that is essentially lozenge-shaped. The width of the slot is largest at its mid-point 87 and decreases gradually towards the ends 88 which are once again radiused as mentioned at page 8, lines 19-21.

Finally, Figure 28 shows a slot having an upper portion 90 that tapers gradually towards the upper end 91, while the lower part 92 of the slot is bi-concave,

reaching the minimum width at the lower end 93 as discussed at page 8, lines 22-24 of *Smith*.

None of the slots disclosed in *Smith* is configured to have, at least at the end which is located most proximal the sealing section, a rounding-off that encompasses, along the rounding-off, at least a first portion with a first radius of curvature, a second portion with a second radius of curvature and a third portion with a third radius of curvature, with the first radius of curvature being different from at least one of the second and third radii of curvature as recited in Claim 1. Although embodiments of the slots disclosed in *Smith* may include curved sides that lead to the radiused ends, *Smith* lacks disclosure that the rounded-off or radiused end of the slot should be configured to have first, second and third portions each having a radius of curvature, with the first radius of curvature being different from at least one of the second and third radii of curvature.

Further, a person reading the disclosure in *Smith* would not have been motivated to modify the configuration of the disclosed slots so that at least the end located most proximal the sealing section possesses a rounding-off having the claimed configuration recited in Claim 1. As discussed in the present application, the configuration of the recesses in the ultrasound horn at issue here helps reduce problems related to the high tension levels that exist in recesses of other known horns. *Smith* is not at all concerned with reducing the tension levels that exist in ultrasound horns and does not recognize the existence of such problem. Consequently, the disclosure in *Smith* would not have motivated one to configure the disclosed slots in a way designed to address such problems, and would not have directed one to configure the slots to have the configuration recited in Claim 1.

It is thus respectfully submitted that the ultrasonic horn recited in Claim 1 is patentably distinguishable over the disclosure in *Smith*.

Claim 10 recites an ultrasonic horn comprising having a transfer section extending between a fixing section and a sealing section, with the transfer section comprising a first portion with a first radius of curvature and a second portion with a second radius of curvature. The first portion is located more proximal the fixing section and the radius of curvature of the first portion is smaller than the radius of curvature of the second portion. An embodiment of this subject matter is shown in Fig. 5 of the present application.

The Official Action does not actually address this claim and so it is not understood what portions of the ultrasonic resonator disclosed in *Smith* correspond to the claimed features. However, there is clearly no discussion or illustration in *Smith* of a transfer section having a first portion (more proximal the fixing section) with a first radius of curvature and a second portion with a second radius of curvature, with the radius of curvature of the first portion being smaller than the radius of curvature of the second portion. Therefore, *Smith* does not anticipate Claim 10, and a *prima facie* case of anticipation has not been established.

Claim 11 defines that the ultrasound horn comprises, a transfer section extending between a fixing section and a sealing section, with the sections substantially extending along a straight line. Recesses are provided at the end surfaces at the transition between the sealing section and the transfer section, and these recesses display a curvature such that a line extending from the sealing section to the fixing section and following the end surfaces along the recesses describe a curve. The recesses have at least a first portion with a first radius of

curvature and a second portion with a second radius of curvature. In addition, the first portion is located more proximal the fixing section, and the radius of curvature of the first portion is larger than that of the second portion.

Smith does not describe that the disclosed ultrasonic resonators have recesses at the end surfaces at the transition between the sealing section and the transfer section, and does not disclose or illustrate that such recesses display a curvature so that a line extending from the sealing section to the fixing section and following the end surfaces along the recesses describes a curve, with the recesses further having at least a first portion located more proximal the fixing section and possessing a first radius of curvature and a second portion possessing a second radius of curvature, and with the radius of curvature of the first portion being larger than that of the second portion as recited in Claim 11.

Therefore, *Smith* also does not anticipate Claim 11, and a *prima facie* case of anticipation has not been established.

Claims 2-9 are allowable, at least by virtue of their dependence from independent Claim 1. These claims also define further distinguishing characteristics of the claimed ultrasound horn that have not been addressed in the Official Action. For example, Claim 2 recites that the width of the recess adjacent the rounding-off is less than the first radius of curvature, while Claim 3 recites that the width of the recesses adjacent the rounding-off is smaller than the third radius of curvature. In addition, Claim 4 sets forth that the second radius of curvature is smaller than the first radius of curvature, while Claim 5 recites that the second radius of curvature is smaller than the third radius of curvature. These features are not disclosed in *Smith*.

For the reasons stated above, it is requested that all the rejections be withdrawn and that this application be allowed in a timely manner.

Should any questions arise in connection with this application, or should the Examiner feel that a teleconference with the undersigned would be helpful in resolving any remaining issues pertaining to this application, the undersigned respectfully request that he be contacted at the number indicated below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

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By: Matthew L. Schneider
Matthew L. Schneider
Registration No. 32,814

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620